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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,255	12/21/2001	Ian Glenn Towe	T8465082US	3346

7590

02/27/2006

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EXAMINER

TESKIN, FRED M

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,255

Applicant(s)

TOWE ET AL.

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 10-14 is/are pending in the application.
4a) Of the above claim(s) 2-6 and 10-12 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 13 and 14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 040505.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

The reply of February 24, 2005, has been fully considered with the effect that the prior art rejection based on Terada et al in view of Mahlman and the evidence provided by Schwartz et al is maintained and applicants' arguments found unpersuasive as detailed below.

Claims 2-6 and 10-12 stand withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected species and a non-elected invention, respectively. Election was made without traverse in paper no. 11.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 13 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over USP 6338784 to Terada et al ("Terada") in view of USP 3665059 to Mahlman and the evidence by Schwartz et al, Plastics Materials and Processes ("Schwartz").

The basis of the rejection and the examiner's position regarding the applied art are adequately set forth in the prior Office action and that explanation is incorporated herein by reference.

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Applicants' arguments filed February 24, 2005, have been fully considered but they are not persuasive of error in the repeated rejection.

With respect to Terada, applicants argue that this reference teaches away from using polypropylene, by itself, in combination with a flexible rubber material and singles out polyethylene as the only suitable candidate for combination, by itself, with a flexible rubber material to form a binder polymer of a heterogeneous ion exchange membrane.

In response, it is firstly noted that since claim 1 uses open transitional language in defining both the binder and the thermoplastic elastomeric olefin, the rejected claims are not limited to polypropylene, by itself, as continuous phase but embrace mixtures of polypropylene and polyethylene in combination with the rubbery phase. Such mixtures are explicitly taught by Terada, column 4, lines 29-35. Second, even if claim 1 is narrowly construed to polypropylene, by itself, as the continuous phase, Terada teaches that the binder polymer of a heterogeneous ion-exchange membrane can be, e.g., low density polyethylene, polypropylene or "a mixture thereof with a flexible rubber material" (col. 4, ll. 7-12). Terada expresses preference for the use of a mixture of polyethylene and one or both of ethylene-propylene rubber (EPR) and ethylene-propylene-diene rubber (EPDM) from the viewpoint of elongation, flexibility and strength of the resulting ion exchange membranes. However, a reference does not "teach away" simply because it indicates certain known or obvious embodiments as being less preferred or even inferior to others for the same use. See *In re Gurley*, 31 USPQ2d 1130, 1132 (Fed. Cir.1994) and *In re Boe*, 148 USPQ 507 (CCPA 1966).

Furthermore, given their close chemical relationship as adjacent homologous members of the polyolefin genus, one of ordinary skill would have reasonably expected a mixture of polypropylene and EPR or EPDM to function equivalently to the corresponding polyethylene mixture as the binder polymer of Terada.

Concerning Schwartz, applicants argue that the reference does not suggest that polyethylene may be substituted for by polypropylene in any specific application, and particularly in binder polymers of heterogeneous ion exchange membranes.

However, the reason for citing Schwartz was not to show the interchangeability of polyethylene and polypropylene in binder polymers of heterogeneous ion exchange membranes; Terada itself provides such teaching. Rather, as noted in the prior action and not disputed by applicants, Schwartz is relied upon to provide evidence that both polyolefins are well known thermoplastics - i.e., both meet the "thermoplastic" limitation of claim 1.

With respect to Mahlman, applicants contend that this reference identifies a technique for production of polypropylene-rubber mixtures, and cannot be taken to suggest the use of such a compound in a heterogeneous ion exchange membrane.

Examiner disagrees. Mahlman is not limited to teaching a technique for producing polypropylene-rubber mixtures, but additionally recognizes benefits provided by the obtained mixture. In particular, Mahlman teaches the addition of a continuous propylene polymer network to a rubbery phase, e.g., ethylene-propylene copolymer rubber as providing property benefits including increased strength and elongation (col. 5, ll. 45+). Increased strength and elongation are consistent with the property

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improvements noted by Terada as a result of using a mixture of polyethylene and EPR or EPDM as the binder polymer of a heterogeneous ion exchange membrane.

Thus the correspondence in the mutually disclosed properties and the similarity in chemical composition would have provided the requisite motivation for one of ordinary skill in the art to combine these references so as to arrive at the claimed invention – i.e., to use a mixture of a polypropylene continuous phase and a second amorphous phase of EPR or an EPDM-type rubber as per Mahlman as the binder polymer of the heterogeneous ion exchange membrane of Terada, in lieu of a polyethylene-rubber mixture.

Accordingly, the continued rejection of claims 1, 13 and 14 is still deemed to be tenable and therefore must be maintained.

No claims are allowable at this time.

THIS ACTION IS MADE FINAL. Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


FRED TESKIN
PRIMARILY RESPONSIBLE
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